

Project No. 1251-100

Crude Oil Tank Farms Project, Agrood Area 30 (Module-1)



System ID

030-EL-009

System  
Description

Substation Interposing Relay Panel System

Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
1	Mechanical Completion Certificate (MCC)	
2	Ready for Startup Certificate (RFSU)	
3	System Punch Lists	
4	System Limits Marked Up P&ID	
5	System Index	
6	Piping Pre-Commissioning	
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	6.02) Piping Pre-commissioning Check Lists	
7	Piping Commissioning	
	7.01) Service Test, GLT, CLT and N2 Purging Certificates	
	7.02) Piping Commissioning Check Lists	
Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
8	Mechanical Pre-Commissioning	
	8.01) System Mechanical Index	
	8.02) Equipment Drawings	
	8.03) Equipment Datasheets	
	8.04) Boxing-up Certificates	

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	11.02) Instrumentation Supplier Check Lists & Reports	
<b>Sr.</b>	<b>Pre-Commissioning and Commissioning Dossier Index</b>	<b>Applicable (Yes/No)</b>
<b>12</b>	<b>Electrical Pre-Commissioning</b>	
	12.01) System Electrical Index	
	12.02) Electrical Drawings	
	12.03) Motor Datasheets	
	12.04) Electrical Cables Schedule	
	12.05) Electrical Cables Laying Certificates	
	12.06) Electrical Cables Testing Certificates	
	12.07) Electrical Cables Termination Certificates	
	12.08) FAT Reports & Certificates	
	12.09) SAT Reports & Certificates	
	12.10) Electrical Pre-Commissioning Check Lists	
	12.11) Electrical Supplier Check Lists & Reports	



<b>13</b>	<b>Electrical Commissioning</b>	
	13.01) Electrical -Commissioning Check Lists	
	13.02) Electrical Supplier Check Lists & Reports	
<b>14</b>	<b>Red Marked-up Drawings</b>	
	14.01) P&ID	
	14.02) Instrumentation Drawings	
	14.03) Electrical Drawings	

[illegible]



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

### 1-Mechanical Completion Certificate (MCC)

## SYSTEM MECHANICAL COMPLETION CERTIFICATE (MCC)

**PROJECT TITLE** : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

**PROJECT No** : 01251-100


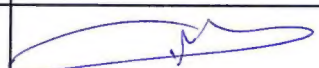
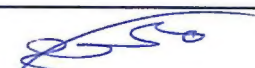
**SYSTEM NAME** : Substation Interposing Relay Panel System

**SYSTEM ID** : 030-EL-009

**THIS IS TO CERTIFY THAT:**

- THE ABOVE SYSTEM HAS BEEN FABRICATED, ERECTED, INSTALLED AND TESTED TO THE REQUIREMENTS OF THE CONTRACT DRAWINGS, SPECIFICATIONS, THE APPLICABLE CODES AND STANDARDS.
- ALL PRE-COMMISSIONING RELEVANT ACTIVITIES, TESTS, INSPECTIONS AND CHECKS HAVE BEEN CARRIED OUT FOR THIS SYSTEM AND FOUND ACCEPTABLE.
- Q/C DOCUMENTATION OF THE ABOVE SYSTEM HAS BEEN AUDITED BY THE CUSTOMER SITE QUALITY CONTROL AND FOUND COMPLETED.
- ALL PUNCH LIST ITEMS CATEGORY (A) IN THIS SUBSYSTEM WERE CLEARED.
- THIS SYTEM IS MECHANICALLY COMPLETED ON THE DATE 28/03/2021 AND READY FOR COMMISSIONING (RFC) WITH THE FOLLOWING EXCEPTIONS.

**EXCEPTIONS :**

COMPANY	PETROJET	ENPPI	PMC
NAME	Eng. Ahmed Nageeb	Mohamed Abbass	M. Saleh
TITLE	E&I Engineer	Site Manager	Site Manager
SIGNATURE			
DATE	29-3-2021	29-03-2021	29-03-2021





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 2- Ready for Startup Certificate (RFSU)

## READY FOR START UP CERTIFICATE

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-02)

**PROJECT No.** : 1251-100


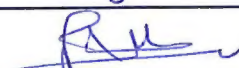

**SYSTEM /AREA /PLANT** : Substation Interposing Relay Panel System

**SYSTEM /AREA /PLANT No.** : 030-EL-009

**THIS IS TO CERTIFY THAT:**

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

**EXCEPTIONS :**

COMPANY	CONSORTIUM	PPC
NAME	Ahmed El Shoke	M. Ibrahim
TITLE	Commissioning Mgr	Elec. engineer
SIGNATURE		
DATE	31-5-2021	





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

### 3- System Punch Lists

**PROJECT TITLE : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)**

PROJECT NUMBER : 01251-100

**DISCIPLINE:** Electrical

### Substation Interposing Relay Panel System


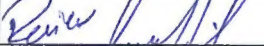

SYSTEM ID: 030-EL-09

**SUB-SYSTEM NAME:**

SUB-SYSTEM ID:

NO	DESCRIPTION	CAT	ACTION BY	DISP	CLEARANCE APPROVED BY
	No Punch				

CAT: CATEGORY(A,B,C) ,ACTION BY: (ENPPI,CONST.CONTRACTOR,SUPPLIER.....) , DISP: DISCIPLINE(PIP,MECH,ELECT,INST.....)

COMPANY	PTJ	ENPPI	PMC
NAME			
SIGN.			
DATE			28-3-2021



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



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#### 4- System Limits Marked Up P&ID





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
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## 5- System Index



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



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## 6- Piping Pre-Commissioning



Project: 01251-100  
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## 6.01- Piping Test Packs





Project: 01251-100  
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## 6.02- Piping Pre-commissioning Check Lists



Project: 01251-100  
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## 7- Piping Commissioning



Project: 01251-100  
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## 7.01- Service Test, GLT, CLT and N2 Purging Certificates





Project: 01251-100  
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## 7.02- Piping Commissioning Check Lists



Project: 01251-100  
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## 8- Mechanical Pre-Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
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## 8.01- System Mechanical Index





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
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## 8.02- Equipment Drawings



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

### 8.03- Equipment Datasheets



Project: 01251-100  
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## 8.04- Boxing-up Certificates



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## 8.05- Grouting Certificates



Project: 01251-100  
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## 8.06- Pre-Alignment Certificates





Project: 01251-100  
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## 8.07- Mechanical Pre-Commissioning Checklists



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## 9- Mechanical Commissioning



Project: 01251-100  
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## 9.01- Final Alignment Certificates



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## 9.02- Motor Solo Run Certificates



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### 9.03- Mechanical Run Test (MRT) Certificates



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## 9.04- Mechanical Commissioning Checklists





Project: 01251-100  
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## 9.05- Mechanical Supplier Check Lists & Reports



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## 10- Instrumentation Pre-Commissioning



Project: 01251-100  
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## 10.01- System Instrument Index



Project: 01251-100  
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System ID	030-EL-009
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## 10.02- Instrument Data Sheets



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
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### 10.03- Instrument Cable Schedule



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#### 10.04- System Instrumentation Wiring Diagram





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## 10.05- Hook-up Drawing (Mechanical & Pneumatic)



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## 10.06- Instruments Cables Schedule



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System Description	Substation Interposing Relay Panel System

## 10.07- Instruments Cables Laying Certificates



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## 10.08- Instruments Cables Termination Certificates



Project: 01251-100  
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## 10.09- Instruments Cables Testing Certificates



Project: 01251-100  
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## 10.10- Instruments Calibration Certificates





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## 10.11- Instrument Loop Checks Certificates



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CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



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## 10.12- Instrumentation Pre-Commissioning Check Lists



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CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



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### 10.13- Instrumentation Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 11- Instrumentation Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

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Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 11.02- Instrumentation Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12- Electrical Pre-Commissioning





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.01- System Electrical Index

030-EL-009	Substation Interposing Relay Panel System	Electrical	030-SUB-IRP - 1	Interposing Relay Panel	Form Type	Check Forms ID
030-EL-009	Substation Interposing Relay Panel System	Electrical	D-030-SUB-IRP-1	LV Cable	Checklist	EL-13 A / EL-30 A
030-EL-009	Substation Interposing Relay Panel System	Electrical	P-030-SUB-IRP-1	LV Cable	Checklist	EL-31 A
					Checklist	EL-31 A



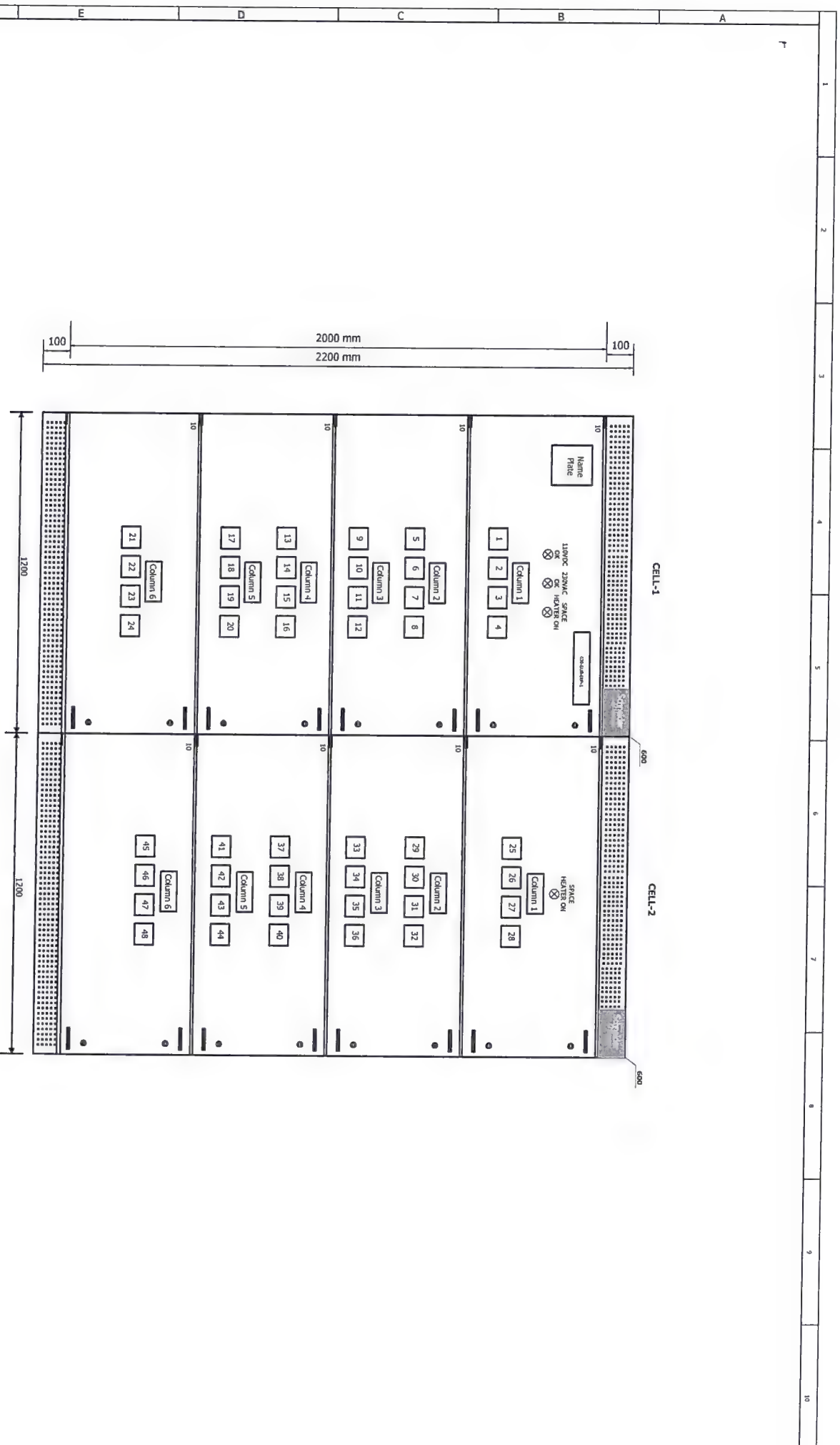
Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



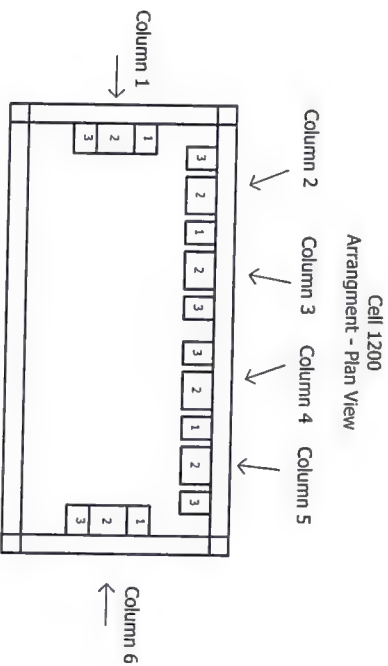
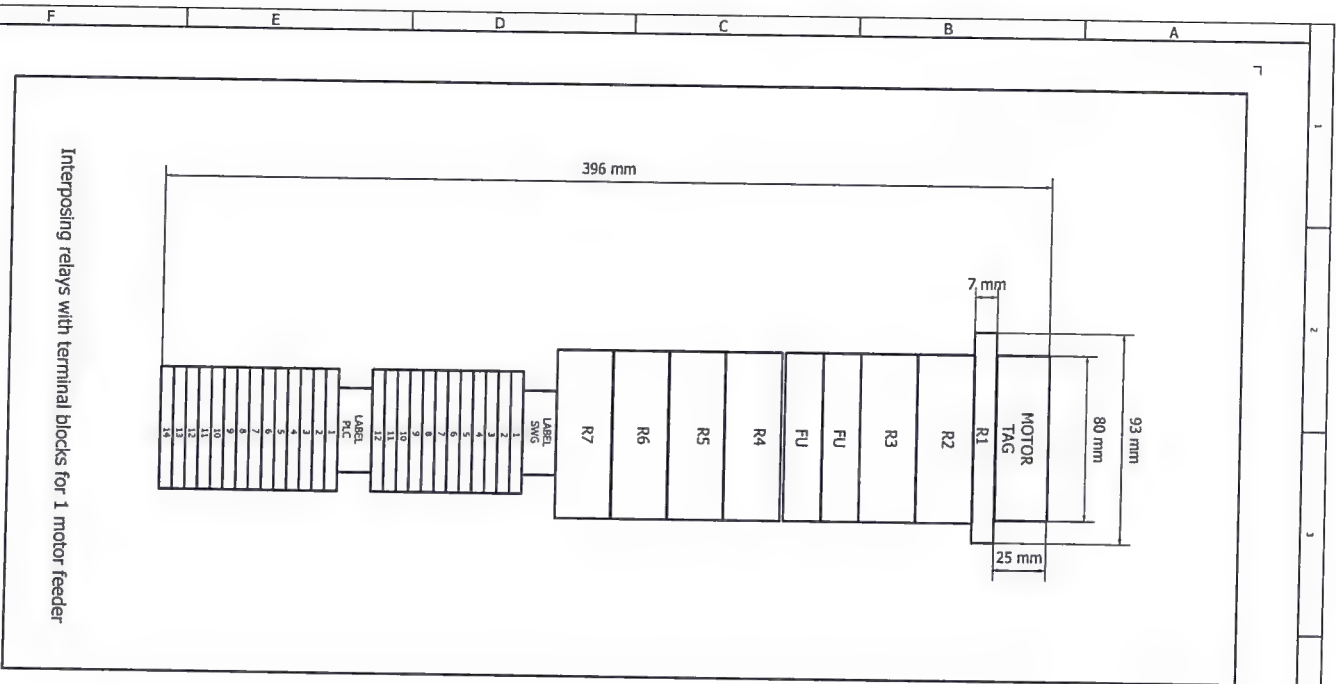
System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.02- Electrical Drawings



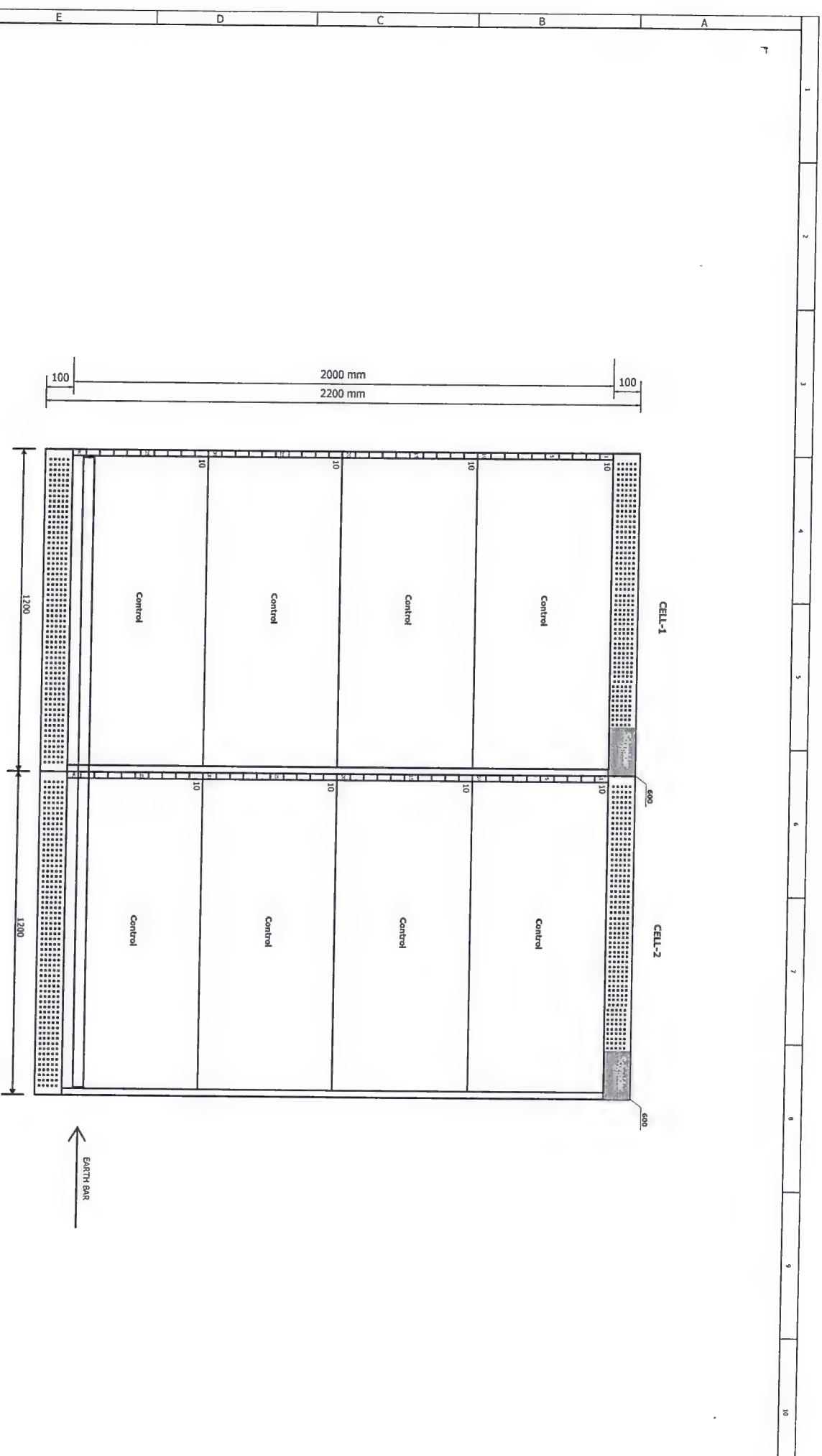


D		06-Aug-20	Issue for production	A	11-Mar-20	FIRST ISSUE	Schneider Electric NEA		Customer name	EGPC/Emppi	Page description		Checked By	Approved By	Item Number	Page
C		27-Jul-20	Issue for production				Schneider Electric		Project description	EGPC crude oil Tank Farm	Layout With Doors		Mahm. Abdullah	Ahmed Saleh	2-5	Total pages
B		29-Apr-20	CUSTOMER MODIFICATION				Schneider Electric		Item Name	Agood Area 030-SUB-RP-1	Drawing number		Project No.	ETO Number	32444208	Revno
Rev.		Date	Page revision description	Rev.	Date	Page revision description										



- 1- Electrical Duct Size 6 cm x 8 cm
- 2- Control relays
- 3- Instrument Duct Size 6 cm x 8 cm

D	06-Aug-20	Issue for Production	A	11-Mar-20	FIRST ISSUE	Customer name	EGPC/Enppi	Page description	Internal Arrangement	Checked By	Mah,Abdullah	Approved By	Ahmed Saleh	Item Number	2-5	Page	
C	27-Jun-20	Issue for Production				Project description	EGPC Crude oil Tank Farm			Project No.	010.004	ETO Number		Drawing number	3244208	Total pages	
B	29-Apr-20	CUSTOMER MODIFICATION														Revision	
Rev.	Date	Page revision description	Rev	Date	Page revision description												



D	06-Aug-20	Issue for Production	A	11-Mar-20	FIRST ISSUE	Schneider Electric NEA <b>Schneider</b> Electric		Customer name	EGPC/Enppi	Page description Layout Without Doors	Checked by	Approved By	Item Number	Page
C	27-Jun-20	Issue for Production						Project description	EGPC/Enppi		Mah. Abdullah	Ahmed Saleh	2-5	Total pages
B	29-Apr-20	CUSTOMER MODIFICATION						EGPC Orde oil Tank Farm			Project No.	ETD Number	Drawing number	Revision
Rev	Date	Page revision description	Rev	Date	Page revision description	Agreed Area 030-SUB-RP-1		010.004						



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
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### 12.03- Motor Datasheets





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

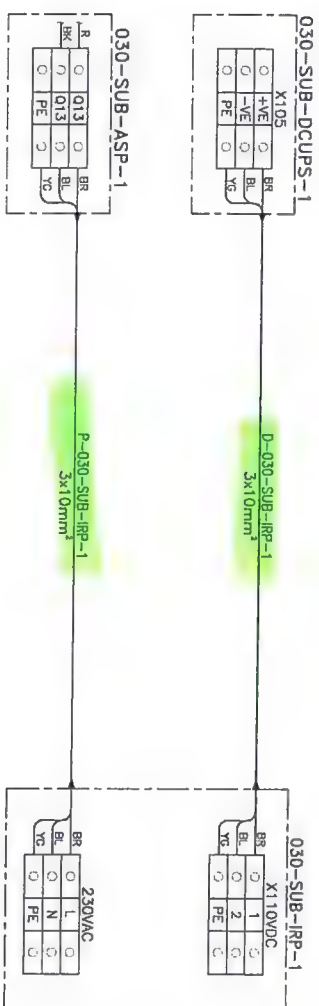


System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.04- Electrical Cables Schedule

PAGE	Cable Mark	GL1	FROM	TO	GL2	CABLE Service	Service Voltage	KW	Size	Type	L
19	D-030-SUB-IRP-1	WP	030-SUB-DCUBS-1	030-SUB-IRP-1	WP	DC FEEDER	110VDC	1.5	3x10	3D	30
19	P-030-SUB-IRP-1	WP	030-SUB-ASP-1 (Q13)	030-SUB-IRP-1	WP	IP11 POWER FEEDER	230VAC	1.0	3x10	3E	25

SWITCHGEAR ROOM



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EGPC  
THE EGYPTIAN GENERAL PETROLEUM CO.  
النفط العامة المصرية للبتروكول

FOR : THE UNITED GENERAL FINANCIAL CORPORATION (UNGF)	لِجَل : البوابة العامة المصرفية للحوال
AT : AGROOD	البرج : مقر البوابة العامة

EGPC CRUDE OIL TANK FARM  
AGROD AREA (MODULE-1)  
ELECTRICAL INTERCONNECTION & WIRING DIAGRAM  
INTERPOSING RELAY PANE-  
(030-SUB-IRP-1)

الشركة الهندسية للصناعات البتروكيمياوية

# Enappi

**ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES**

SCALE	DOCUMENT NUMBER	SHEET	REVISION
NONE	01251-100-030-EWI-001	021 OF 078	1

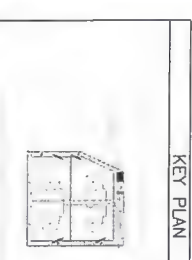
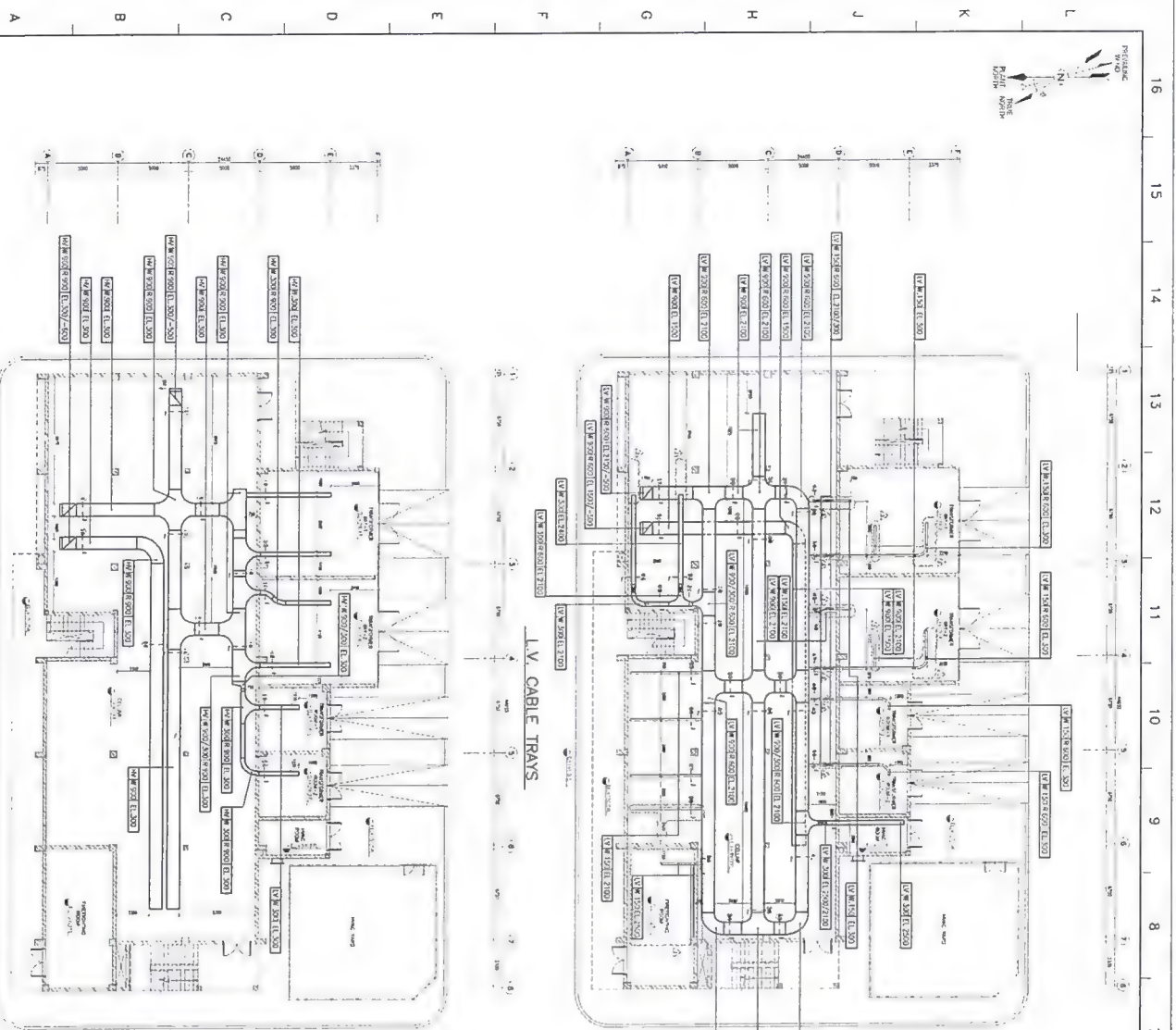


Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.05- Electrical Cables Laying Certificates

[illegible]NOTI

— 101: SENSATION: SEE DURING B1251-100-031-023-001 SENSE 09 1 OF 2

**IDENTIFICATION**

	IDENTIFICATION	REMARKS
1	RE-TESTED FOR CONTAMINATION	PM SOLA NR SOLA
2	ISSUED FOR CONTAMINATION	ASOL SOLA ASOL SOLA
3	RE-TESTED FOR CONTAMINATION	ASOL SOLA ASOL SOLA
4	ISSUED FOR CONTAMINATION	ASOL SOLA ASOL SOLA

END

REMARKS: 1. NO. 101: SENSATION: SEE DURING B1251-100-031-023-001 SENSE 09 1 OF 2

[illegible]



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.06- Electrical Cables Testing Certificates





Enppi

EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER

PT-J-ELE-RFI-

INSPECTION DATE & TIME

INSTRUMENT TYPE:

HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000

SERIAL:

17015900385

SERVICE VOLTAGE: 400

TEST VOLTAGE: 1000

AREA / PACKAGE:

SUBSTATION

SYSTEM NO.:

SHEET NO

DOCUMENT NO.

ITR-EL-0006A

DISCIPLINE

ELECTRICAL

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	PHASE TO PHASE			PHASE TO NUETRAL "M.Ohm"			PHASES & NUETRAL TO ARMOR "M.Ohm"				RESULT		
				BR-BK	BR-GR	BK-GR	BR-B	BK-B	GR-B	BR-ARM	BK-ARM	GR-ARM	B-ARM	Pass	FAIL	
17	P-030-SUB-LPDP-1	3.5x120	✓	OL	OL	OL	OL								✓	
18	P-030-SUB-ASP-1	3.5x120	✓	OL	OL	OL	OL								✓	
19	P-030-EPM1-UPDP-1	3.5x50	✓	OL	OL	OL	OL								✓	
20	P1-030-SUB-ACUPS-1	3x10	✓	OL			OL								✓	
21	P-030-SUB-IRP-1	3x10	✓				OL								✓	
22	D-030-SUB-LVSWG-1A	3x10	✓				OL								✓	
23	D-030-SUB-LVSWG-1B	3x10	✓				OL								✓	
24	D-030-SUB-IRP-1	3x10	✓				OL								✓	
25	P1-030-SUB-LVSWG-1A	3x10	✓				OL								✓	
26	P1-030-SUB-LVSWG-1B	3x10	✓				OL								✓	
27	C1-030-SUB-ACUPS-1	3x2.5	✓				OL								✓	
28	C2-030-SUB-ACUPS-1	3x2.5	✓				OL								✓	
29	C1-030-SUB-DCUPS-1	3x2.5	✓				OL								✓	
30	C2-030-SUB-DCUPS-1	3x2.5	✓				OL								✓	
31	P-030-SUB-AVR-1A	3x4	✓				OL								✓	
32	P-030-SUB-AVR-1B	3x4	✓				OL								✓	

Remarks :-

Reference :-

PETROJET

ENPPI

PMC

ITR-EL-0006A



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.07- Electrical Cables Termination Certificates



**Enppi****EGPC CRUDE OIL TANK FARM**Owner : **Egyptian General Petroleum Corporation (EGPC)**Project No: 01251-100-030  
:01251-100-031Contractor **CONSORTIUM (ENPPI / PETROJET)**Document No: ITR-QC-0001  
Revision No. : 00**REQUEST FOR INSPECTION**ACTIVITY : **CABLE TERMINATION AND TEST**NOTIFICATION NO. : **PTJ-ELE-RFI- 270** DISCIPLINE : **ELEC**DATE : **27/03/2021**

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
18	D2-030-SUB-ACUPS-1-BAT-A	SUBSTATION					
19	D1-030-SUB-ACUPS-1-BAT-B	SUBSTATION					
20	D2-030-SUB-ACUPS-1-BAT-B	SUBSTATION					
21	D1-030-SUB-DCUPS-CB-A	SUBSTATION					
22	D2-030-SUB-DCUPS-CB-A	SUBSTATION					
23	D1-030-SUB-DCUPS-CB-B	SUBSTATION					
24	D2-030-SUB-DCUPS-CB-B	SUBSTATION					
25	D1-030-SUB-DCUPS-1-BAT-A	SUBSTATION					
26	D2-030-SUB-DCUPS-1-BAT-A	SUBSTATION					
27	D1-030-SUB-DCUPS-1-BAT-B	SUBSTATION					
28	D2-030-SUB-DCUPS-1-BAT-B	SUBSTATION					
29	P-030-SUB-LPDP-1	SUBSTATION					
30	P-030-SUB-ASP-1	SUBSTATION					
31	P-030-EPM1-UPDP-1	SUBSTATION					
32	P1-030-SUB-ACUPS-1	SUBSTATION					
33	P-030-SUB-IRP-1	SUBSTATION					
34	D-030-SUB-LVSWG-1A	SUBSTATION					

**NOTE:**

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

ITR-QC-0001



Project No: 01251-100-030  
:01251-100-031




Document No: ITR-QC-0001  
Revision No. : 00

ACTIVITY : CABLE TERMINATION AND TEST

DATE : 27/03/2021

**NOTE:**

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

ITR-QC-0001



EGPC CRUDE OIL TANK FARM



## INSPECTION AND TEST REPORT FOR

## CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER

PTJ-ELE-RFI- 270

INSPECTION DATE &amp; TIME

27/03/2021

ITR NUMBER

ITR-EL-0009

DISCIPLINE

ELEC

SHEET NO

1 OF 1

Item/Tag NO.:

For All Cables tags in PTJ-ELE-RFI- 270

Type :-

Core:

Size:

NO.	Description of check	RESULT		
		ACCEPT	REJECT	N/A.
1	Check cable glands are correct type and size as per cable schedule.	✓		
2	Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory.	✓		
3	Check cable tag is done correctly.	✓		
4	Test and confirm conductor, phase continuity.	✓		
5	Check Insulation resistance test (megger) is completed **	✓		
6	Check Hi-pot test is completed, only for MV/HV cables ***			✓
7	Connect all cores at both ends and confirm all connections are correct as per termination diagram.	✓		
8	Confirm spare cores, screens are earthed and conform to design drawings/specifications	✓		✓
9	Check enclosure cover is installed, no damages and no bolts are missing	✓		
10	Calibration test certificate of testing equipment to be checked.	✓		

## Remarks :

\*\* : ITR-EL-006A/B

\*\*\* : ITR-EL-008

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

ITR-EL-0009



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.08- FAT Reports & Certificates

System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.09- SAT Reports & Certificates





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.10- Electrical Pre-Commissioning Check Lists

## PRE-COMMISSIONING CHECK LIST MEDIUM VOLTAGE CABLES EL-31 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : P-030-SUB-IRP-1


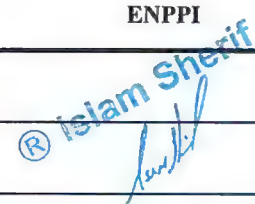
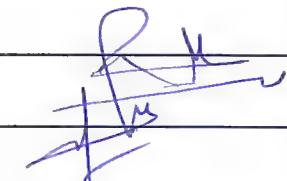
**AREA** : 30

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

### REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			

## PRE-COMMISSIONING CHECK LIST MEDIUM VOLTAGE CABLES EL-31 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : P-030-SUB-IRP-1


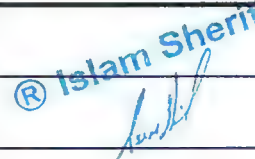
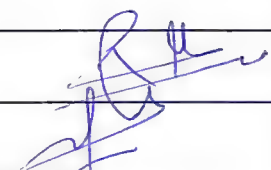
**AREA** : 30

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	✓	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	✓	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			



## PRE-COMMISSIONING CHECK LIST MEDIUM VOLTAGE CABLES EL-31 A

### INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

### NOTES:

## PRE-COMMISSIONING CHECK LIST SMALL POWER DISTRIBUTION PANEL EL-13 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : 030-SUB-IRP - 1

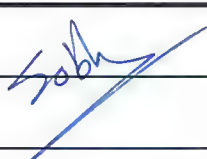
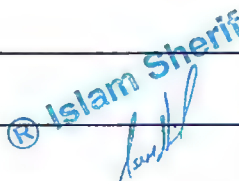
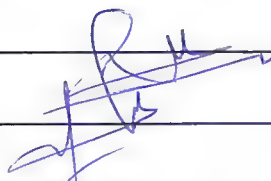
**AREA** : 30

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check equipment assembly for alignment, levelness and foundation fixing details.	✓	
3	Check nameplate details and outgoing feeder labels w.r.t approved documents.	✓	
4	Check the DB and its components for any mechanical damage.	✓	
5	Check equipment earthing connections.	✓	
6	Check connection of gland plate to the earthing busbar.	✓	
7	Check that panel meters & indication lamps are working.	✓	
8	All compartments to be cleaned internally and externally.	✓	
9	All supports needed for power and control cables to be checked.	✓	
10	Check that all connections are tight and secure.	✓	
11	Check all busbar connections and covers according to the approved documents and supplier recommendations.	N/A	

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			

## PRE-COMMISSIONING CHECK LIST SMALL POWER DISTRIBUTION PANEL EL-13 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel  
System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel  
System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : 030-SUB-IRP - 1

**AREA** : 30

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Remove any accidental connections between phases and from phases to ground.	N/A	
13	Check polarity of D.C supplies (if any).	N/A	
14	Check equipment anti- condensation heaters and test insulation resistance (**)	✓	
15	Insulation resistance test of busbar bolted connections (Between phases and phases to ground) (*)	N/A	
16	Voltage withstand test of both the main and aux. circuits, this shall be carried out between phases and phases to ground (***)	N/A	
17	Equipment test report and inspection certificate to be checked.	✓	
18	Check availability of vendor documents, including commissioning and start-up instructions.	N/A	

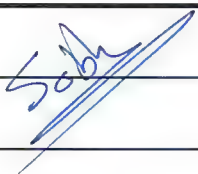
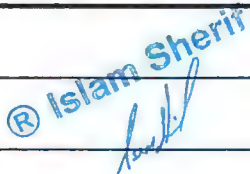
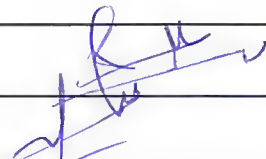
**REMARKS AND OBSERVATIONS :**

(\*) Refer to table [II]

(\*\*) 500 V megger, min. 10 MΩ (Manufacture's test voltage & minimum values should be referenced)

(\*\*\*) Refer to table [I]

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			

**PRE-COMMISSIONING CHECK LIST  
SMALL POWER DISTRIBUTION PANEL  
EL-13 A**

**VOLTAGE WITHSTAND TEST**

**TABLE OF TEST VOLTAGES**

<b>EQUIPMENT RATED VOLTAGE (kV)</b>	<b>TEST VOLTAGE (KV)</b>
0.6	2

**TABLE [I]**

**NOTES:**

All current transformer secondary's shall be short circuit for the duration of the test.

All voltage transformers shall be disconnected by removal of primary and secondary fuses for the duration of the test.

Test shall be carried out with all circuit breakers, isolators and switches closed, but with all the cable cores disconnected.

## PRE-COMMISSIONING CHECK LIST SMALL POWER DISTRIBUTION PANEL EL-13 A

### INSULATION TEST

TABLE OF MINIMUM TEST VOLTAGES

EQUIPMENT RATED VOLTAGE (kV)	TEST VOLTAGE (V) (one minute)	MINIMUM INSULATION RESISTANCE (M.OHMS)
0.6	1000	100
0.04	1000	100
CONTROL WIRING	500	10

TABLE [II]

#### NOTES:

Manufacture's test voltage & minimum values for insulation resistance should be referenced.



## PRE-COMMISSIONING CHECK LIST LOW VOLTAGE CABLES EL-30 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : 030-SUB-IRP - 1

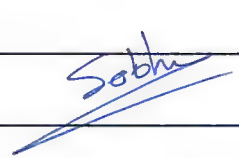
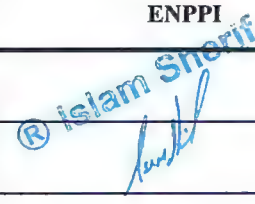

**AREA** : 30

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	Tie wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	N/A	

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			

## PRE-COMMISSIONING CHECK LIST LOW VOLTAGE CABLES EL-30 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel  
System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel  
System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : 030-SUB-IRP - 1

**AREA** : 30

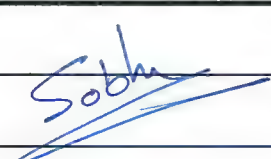
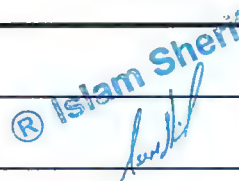

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Check that buried cables are correctly covered and protected.	✓	
13	Trench markers to be checked w.r.t approved documents.	✓	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be-checked.	✓	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
19	Calibration test certificate of testing equipment to be checked.	✓	

### REMARKS AND OBSERVATIONS :

(\*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			

## PRE-COMMISSIONING CHECK LIST LOW VOLTAGE CABLES EL-30 A

### INSULATION TEST

#### LOW VOLTAGE CABLES

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200

TABLE [III]

#### NOTES:

Manufacture's test voltage & minimum values for insulation resistance should be referenced.



## PRE-COMMISSIONING CHECK LIST MEDIUM VOLTAGE CABLES EL-31 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : D-030-SUB-IRP-1

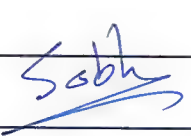
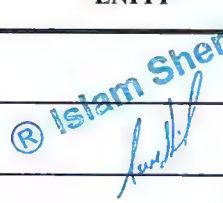
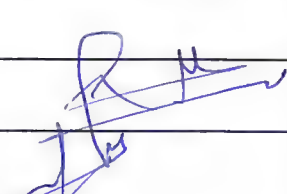
**AREA** : 30

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			

## PRE-COMMISSIONING CHECK LIST MEDIUM VOLTAGE CABLES EL-31 A

**PROJECT TITLE** : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation Interposing Relay Panel  
System

**SYSTEM ID** : 030-EL-009

**SUB-SYSTEM NAME** : Substation Interposing Relay Panel  
System

**SUB-SYSTEM ID** : 030-EL-009

**ITEM TAG No.** : D-030-SUB-IRP-1

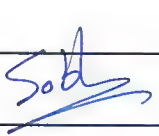
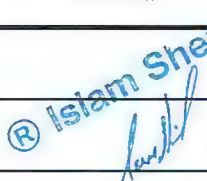
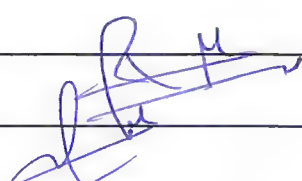
**AREA** : 30

**REF. DWGs/DOCs** :

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	✓	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	✓	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE			
DATE			



**PRE-COMMISSIONING CHECK LIST  
MEDIUM VOLTAGE CABLES  
EL-31 A**

**INSULATION TEST**

**EL-31 A**

<b>CABLE VOLTAGE LEVEL</b>	<b>D.C TEST VOLTAGE</b>	<b>MINIMUM INSULATION RESISTANCE (M.OHMS).</b>
3.3kV	2500V	200
6.6kV & Above	5000V	200

**TABLE [I]**

**NOTES:**



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 12.11- Electrical Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

### 13- Electrical Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

### 13.01- Electrical -Commissioning Check Lists



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 13.02- Electrical Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 14- Red Marked-up Drawings





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 14.01- P&ID



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 14.02- Instrumentation Drawings



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-009
System Description	Substation Interposing Relay Panel System

## 14.03- Electrical Drawings